November 17, 2004

Mr. G. R. Peterson, Vice President
McGuire Nuclear Station
Duke Energy Corporation
12700 Hagers Ferry Road
Huntersville, NC 28078-8985

SUBJECT: MCGUIRE NUCLEAR STATION, UNIT 1 - REQUEST FOR RELIEF FOR USE OF A LATER EDITION OF THE ASME SECTION XI CODE FOR THE REMAINDER OF THE THIRD 10-YEAR INSPECTION INTERVAL RR-03-001 (TAC MC2767)

Dear Mr. Peterson:

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated March 8, 2004, as supplemented by letter July 26, 2004, Duke Energy Corporation, the licensee for McGuire Nuclear Station (McGuire), Unit 1, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(a)(3)(i), requested to use an alternative to the American Society of Mechanical Engineers (ASME) *Boiler and Pressure Vessel Code* (Code). Specifically, the licensee requested to use ASME Code, Section XI, 1998 Edition through the 2000 Addenda in lieu of the ASME Code, Section XI, 1995 Edition through the 1996 Addenda for the remainder of the third 10-year inservice inspection (ISI) interval.

The NRC staff has completed its review of the subject request for relief. As documented in the enclosed Safety Evaluation, the NRC staff concludes that the proposed alternative provides an acceptable level of quality and safety. Therefore, the licensee's proposed alternative to the ASME Code requirements is authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the remainder of the third 10-year ISI interval at McGuire, Unit 1. All other ASME Code, Section XI requirements for which relief was not specifically requested and approved in this relief request remain applicable, including third party review by the Authorized Nuclear Inservice Inspector.

Sincerely,

/RA/

Mary Jane Ross-Lee, Acting Chief, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-369

Enclosure: As stated

cc w/encl: See next page

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DATE	11/3/04	11/3/04	10/13/2004	11/10/04	11/17/04

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

UPDATE TO LATER CODE OF RECORD FOR THRD 10-YEAR ISI INTERVAL (RR-03-001)

DUKE ENERGY CORPORATION

MCGUIRE NUCLEAR STATION, UNIT 1

DOCKET NUMBER 50-369

1.0 INTRODUCTION

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated March 8, 2004, as supplemented by letter July 26, 2004, Duke Energy Corporation, the licensee for McGuire Nuclear Station (McGuire), Unit 1, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(a)(3)(i), requested to use an alternative to the American Society of Mechanical Engineers (ASME) *Boiler and Pressure Vessel Code* (Code). Specifically, the licensee requested to use ASME Code, Section XI, 1998 Edition through the 2000 Addenda in lieu of the ASME Code, Section XI, 1995 Edition through the 1996 Addenda for the remainder of the third 10-year inservice inspection (ISI) interval.

2.0 REGULATORY EVALUATION

2.1 Applicable Requirements

The ISI of ASME Code Class 1, 2, and 3 components shall be performed in accordance with Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," of the ASME Code and applicable addenda as required by Title10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). Section 50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be used when authorized by the NRC, if the licensee demonstrates that (i) the proposed alternatives would provide an acceptable level of quality and safety or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2 and 3 components (including supports) shall meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in the ASME Code, Section XI, to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The third 10-year interval for

McGuire, Unit 1, began on December 1, 2002, and ends on November 30, 2012. The applicable edition of Section XI of the ASME Code for the third 10-year interval for McGuire, Unit 1, is the 1995 Edition through the 1996 Addenda. The components (including supports) may meet the requirements set forth in subsequent editions and addenda of the ASME Code incorporated by reference in 10 CFR 50.55a(b) subject to the limitations and modifications listed therein and subject to Commission approval.

3.0 TECHNICAL EVALUATION

3.1 Systems/Components For Which Relief is Requested

Duke requested relief for components inspected as required by ASME Code, Section XI, 1995 Edition through the 1996 Addenda, as modified by 10 CFR 50.55a for the second and third periods of the third 10-year ISI interval at McGuire, Unit 1.

3.2 Licensee's Proposed Alternative

The licensee proposed to use the 1998 Edition through the 2000 Addenda of the ASME Code, Section XI, as modified by 10 CFR 50.55a. After discussion with the NRC staff, the licensee submitted a complete revision to the aforementioned relief request, by letter dated July 26, 2004. The revised submittal included two limitations the licensee committed to implement when using the ASME Code, Section XI, 1998 Edition through the 2000 Addenda as modified by 10 CFR 50.55a. The two limitations are identified below:

1) Paragraph IWA-4340 of the 2000 Addenda regarding mitigation of defects by "modification" will not be used.

2) The repair and replacement activity provisions in IWA-4540(c) of the 1998 Edition of ASME Code, Section XI, for pressure testing Class 1, 2, and 3 mechanical joints will be applied when using the 1998 Edition through the 2000 Addenda of ASME Code, Section XI.

3.3 Basis for Use of Proposed Alternative

The licensee requested the alternative to ASME Code, Section XI, 1995 Edition through the 1996 Addenda, to align the third 10-year ISI interval for McGuire, Unit 1 with the same Code of Record for the third 10-year ISI interval for McGuire, Unit 2.

3.4 NRC Staff Evaluation

Section 50.55a(g)(4)(ii) requires ISI during a given interval to be performed in accordance with the requirements of the latest edition and addenda of the ASME Code incorporated by reference in 10 CFR 50.55a(b) 12 months prior to the 120-month inspection interval subject to the limitations and modifications listed therein. Section 50.55a(g)(4)(iv) states in part that ISI examination of components and system pressure tests may meet the requirements set forth in subsequent editions and addenda that are incorporated by reference in 10 CFR 50.55a(b) subject to Commission approval. The edition of the ASME Code incorporated by reference in 10 CFR 50.55a(b) 12 months prior to the end of the McGuire, Unit 1 second interval is the 1995 Edition through the 1996 Addenda. The 1998 Edition through the 2000 Addenda was endorsed

by a subsequent amendment to 10 CFR 50.55a and became effective on October 28, 2002 (67 FR 60520). Subsequent to the endorsement of the 1998 Edition through the 2000 Addenda, in 10 CFR 50.55a, the NRC staff has taken issue with two items which are discussed in detail below.

Provisions outlined in IWA-4340 were added to the 2000 Addenda in order to provide requirements for the mitigation of defect by "modification." Paragraph IWA-4340 allows a defect to remain in a component provided that the defect can be eliminated from the pressure boundary by "modification." It is the NRC staff's view that the scope of the activity envisioned or permitted by this subarticle does not provide limitations on the applicability of its provisions to specific ASME Code classes or components. As written, this provision could be used in applications with widely varying safety significance and levels of difficulty in implementation. A proposed rule published in the *Federal Register* on January 7, 2004, (69 FR 879), seeks to prohibit the use of IWA-4340 when using the 2001 Edition through the 2003 Addenda of the ASME Code. This limitation is contained in the final rule that incorporates by reference the 2001 Edition through the 2003 Addenda of the ASME Code, that was published in the *Federal Register* on October 1, 2004 (69 FR 58804). By letter dated July 26, 2004, the licensee agreed that, "Paragraph IWA-4340 regarding mitigation of defects by modification will not be used," when using the 1998 Edition through 2000 Addenda.

The requirements to pressure test Class 1, 2, and 3 mechanical joints following repair and replacement activities were deleted in the 1999 Addenda of Section XI. Therefore, pressure testing of mechanical joints is no longer required by ASME Code, Section XI when performing IWA-4000 repair and replacement activities. The NRC staff has articulated that there is no justification for eliminating the requirements for pressure testing Class 1, 2, and 3 mechanical joints. Pressure testing of mechanical joints affected by repair and replacement activities is necessary to ensure and verify structural and leakage integrity of the pressure boundary. A proposed rule published in the *Federal Register* on January 7, 2004, seeks to retain the pressure testing requirements in IWA 4540(c) of the 1998 Edition when using the 2001 Edition through the 2003 Addenda. This limitation is also contained in the final rule that incorporates by reference the 2001 Edition through the 2003 Addenda of the ASME Code, that was published in the *Federal Register* on October 1, 2004 (69 FR 58804). By letter dated July 26, 2004, the licensee agreed that, "The repair and replacement activity provisions in IWA-4540(c) of the 1998 Edition of Section XI for pressure testing Class 1, 2, and 3 mechanical joints will be applied when using the 1998 Edition through the 2000 Addenda of Section XI."

4.0 CONCLUSION

The NRC staff concludes that the licensee's request to use the 1998 Edition through the 2000 Addenda of the ASME Code, with the conditions stated above, in lieu of the 1995 Edition through the 1996 Addenda as required by 10 CFR 50.55a(b)(2), is acceptable to the NRC staff and provides an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(g)(4)(iv), the staff authorizes the use of the ASME Section XI 1998 Edition through 2000 Addenda as modified by 10 CFR 50.55a with the following conditions described below, and as agreed to by letter from the licensee dated July 26, 2004, for the McGuire, Unit 1, third 10-year ISI interval. All other ASME Code, Section XI requirements for which relief was not specifically requested and approved in this request remain applicable, including third party review by the Authorized Nuclear Inservice Inspector.

Conditions:

(1) Paragraph IWA-4340 regarding mitigation of defects by “modification” will not be used.

(2) The repair and replacement activity provisions in IWA-4540(c) of the 1998 Edition of Section XI for pressure testing Class 1, 2, and 3 mechanical joints will be applied when using the 1998 Edition through the 2000 Addenda of Section XI.

Principal Contributor: E. Reichelt

Date: November 17, 2004